

EISENHOWER MATHEMATICS AND SCIENCE EDUCATION FUNDS

ACTION
Agenda Item F-6
November 13, 2000

Recommendation:

The staff recommends that the Council award federal Dwight D. Eisenhower Mathematics and Science Education funds in the amount of \$742,409 to support the projects listed in the attachment for October 1, 2000 – September 30, 2001.

Background:

The Dwight D. Eisenhower Mathematics and Science Education Grant Program supports activities in schools to improve teaching and learning in mathematics, the sciences, and other curriculum areas. This year, the Council requested proposals targeting development of curricula in mathematics, the sciences, and technology preparing students for careers in engineering and the new economy.

A panel of 18 reviewers from across the Commonwealth—including K-12 teachers, postsecondary faculty in mathematics and the sciences, and representatives from the private sector—evaluated the 23 proposals. One of the largest funded projects is for professional development as part of the Kentucky Department of Education's Teacher Academy Program.

ATTACHMENT

Eisenhower Mathematics and Science Education Grant Program Projects Recommended for Approval for Federal Fiscal Year 2001

Eastern Kentucky University: \$50,358

*Project Maywoods: Middle School Teachers Applying Science Care Content
Through Environmental Inquiry*

Veteran middle school science teachers in south central Kentucky will conduct environmental investigations with novice science teachers at the Maywoods Environmental and Educational Laboratory at ECU. Participant activities will include an eight-day workshop offered as a four-hour graduate course, follow-up sessions, on-site school visits, field trip planning, and presenting a paper at the Kentucky Science Teachers Association.

Kentucky Community and Technical College System: \$53,802

Introductory Algebra for All

The project targets teachers of introductory algebra courses (Pre-Algebra, Algebra I, Technical Math, and Applied Math) in 17 Appalachian school districts. It will provide an intensive week-long workshop for 60 participants at two locations (Morehead State University and Prestonsburg Community College). The project also provides on-site team teaching through the Appalachian Rural Systemic Initiative Teacher Partners (ARSI) and on-line collegial listserv support.

Murray State University: \$47,211

Connections: Math/Science Across the Curriculum Using the Environment

Murray State's Center for Environmental Education and Western Kentucky University's Center for Math, Science, and Environmental Education will offer a residential summer institute, with two follow-up sessions, at Land Between the Lakes. The project will select up to 30 participants to use environmental studies to connect mathematics and science concepts across the curriculum.

Northern Kentucky University: \$46,339

Reading the River

The project title is taken from the conservationist Aldo Leopold's concept of "reading the landscape" to discover and understand the natural and human forces that shape the environment. Twenty teachers will go on a river journey from the headwaters to the mouth of the Licking River. They will focus on water quality in relation to natural history, land use, and culture. The project will address all major areas of the elementary and secondary curriculum.

Ohio Valley Educational Cooperative: \$54,000

*Project SMART (Science and Mathematics Achievement Revived Through
Technology)—an Expansion*

The project will provide a summer institute, mentoring assistance, and teaching equipment to an anticipated 43 middle and high school math and science teachers in 25 schools in six counties. The project will be led by University of Louisville faculty.

Southeast Community College: \$44,418

Development of Inquiry-Based Integrated Math and Science Experiments for the Schools in the Southeast Community College Service Area

Southeast Community College will sponsor a week-long math and science workshop for approximately 36 teachers in grades 5-9 in southeast Kentucky. Working in small groups, teachers will develop units of study focusing on practical everyday objects as teaching tools for math and science. They will receive guidance in organizing science fair projects that utilize mathematical concepts. Face-to-face and listserv follow-up activities will continue throughout the year.

Transylvania University: \$53,675

Supporting Appalachian Teachers of Chemistry (SAT-Chem)

Through week-long summer institutes and support provided by ARSI Teacher Partners, 40 teachers of high school chemistry in 17 Appalachian school districts will increase their scientific knowledge, acquire greater understanding of inquiry-based learning, and develop better quality classroom materials.

Union College: \$25,504

Properties of Matter: Teaching Middle Grades Chemistry in a KERA Environment

The project will provide a summer workshop and follow-up activities that prepare teachers to address the concepts of chemistry found in the Department of Education's assessments and the National Science Education Standards for grades 5-9.

University of Kentucky: \$141,772

Kentucky Middle School Mathematics Academies—Year 2

The project will continue into a second year eight five-day Mathematics Academies focusing on mathematics content for middle school teachers across the state. Activities will build the content knowledge of 240 middle school mathematics teachers, improve their instructional abilities, and raise student achievement as measured by classroom, district, and state assessments.

University of Kentucky Research Foundation: \$51,148

Understanding Scientific Process Through Modeling Past and Present Causes in the Earth, Life, and Environmental Sciences for Middle and High School Teachers

The project builds on summer professional workshop opportunities to offer to 22 middle and high school teachers increased understanding of concepts in the earth, life, and environmental sciences. Through a week-long field trip to San Salvador and follow-up, geological comparisons will be drawn between the limestone sediment, fossils, deposits, and landforms of Kentucky and analogous formations in San Salvador.

University of Louisville: \$48,693

Mathematics and Science Teacher Development, Education, and Research Center

The University of Louisville Arts and Sciences and Education faculty will work with mathematics and science teachers at Atherton High School to improve high school teachers' disciplinary knowledge and postsecondary faculty's appreciation of classroom teaching outside the university. This high school-university partnership of teaching, laboratory demonstrations,

seminars, research exchange, science fairs, and curricular planning will continue on-site throughout the academic year guided by the needs of the high school faculty.

Western Kentucky University \$50,540

Raising Achievement in Middle School Science

The project will expand current work in curriculum development and unit planning for an estimated 46 middle school science teachers to meet Department of Education standards and National Science Standards.

Western Kentucky University \$53,084

The River: A Resource for Improving Math and Science Content

The project extends a well-received project to south central Kentucky. A projected 28 middle school mathematics and science teachers will use scientific experiments—some conducted on a week-long canoe trip in Mammoth Cave National Park—to evaluate the physical, biological, and chemical quality of water systems. They will learn to use technology and mathematical concepts to make predictions and to analyze the data they collect.

Western Kentucky University \$21,866

Teaching and Learning Science Core Content Using Astronomy and Space Science Activities

University faculty will work with an estimated 20 middle and high school faculty to improve teachers' knowledge of basic concepts in astronomy and to help teachers meet the standards of the Department of Education. Teachers will develop curriculum and unit and lesson plans, engage in astronomical observations, and learn about computer space simulation, telescope construction, spectroscopic analysis of light, and model rocketry.

Total Awarded: \$742,409